27 January 2012

Regulation Branch
Commerce Commission
Wellington

by email: regulation.branch@comcom.govt.nz

SUBMISSION ON ADDITIONAL INPUT METHODOLOGIES FOR DEFAULT PRICE-QUALITY PATHS PROCESS AND ISSUES PAPER

1 Orion New Zealand Limited (**Orion**) welcomes the opportunity to comment on the "Additional input methodologies for default price-quality paths" process and issues paper (the **paper**) released by the Commerce Commission (the **Commission**) in December 2011.

2 Due to the impact of the Canterbury earthquakes Orion did not participate in Commission's last round of consultation on the 2011 Draft Decision, to reset the default price-quality path (DPP) for non-exempt electricity distribution business (EDBs) issued in July (subsequently suspended).

3 Unlike previously, this time Orion has had the opportunity to review the Commission's paper and to participate in the development of the submission on starting price adjustments prepared by the ENA. Our submission should be read in conjunction with (and is intended to be complementary to) the submission filed by the ENA on starting price adjustments process and issues paper (the **ENA submission**).

4 Our submission has been restricted to a number of specific issues that impact on Orion:

- self insurance
- the status of information already provided to the Commission by suppliers;
- the application of claw back

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- revenue and expenditure projections

5 In addition to this submission Orion has engaged its expert economic advisers, NERA, to respond to some of the questions posed by the Commission in relation to the treatment of self-insurance under the default price-quality path (DPP) to be applied to EDBs. A report prepared by NERA addressing the treatment of self-insurance is attached as an appendix.

Self insurance

6 The Commission has raised a number of issues related to self insurance in the DPP this is clearly an issue that is of great interest to Orion in light of the damage caused by the Canterbury earthquakes and ongoing aftershocks. Orion has made sound commercial decisions on the level of insurance cover that it carries particularly as this cover relates to underground cables and overhead lines.

7 We believe that for high impact low probability events such as the Christchurch earthquakes it is not appropriate or cost effective (or indeed in the long term interests of consumers) to insure all network assets and business interruption risks. Rather in the very rare case when an event of this nature occurs, the Commission should allow businesses to recover the costs of such events from their customers as and when they happen.

8 As indicated above Orion has commissioned NERA to produce a paper titled "The treatment of Self Insurance" (appended). We hope this assists the Commission in its consideration of insurance issues. The key conclusions of NERA's report are repeated below for convenience.

Nera's Conclusions on Self Insurance

"In its Process and Issues Paper, the Commission has raised the possibility of including an explicit 'up-front' allowance for self-insurance in the DPP. In our opinion, this type of arrangement could feasibly be implemented in circumstances where a business has self insured against a risk that is routinely dealt with by insurance markets. However, the potential benefits from doing so depend upon the particular circumstances. For this reason, if the Commission does choose to develop such an arrangement, we consider that it would be best left to the individual businesses to decide whether it is to receive an up-front premium, or whether it remains 'uninsured'. There would also be no obvious reason to limit the application of that mechanism to instances of self-funding.

Low-likelihood but high-cost events such as the Canterbury earthquakes are an altogether different matter. In our opinion, it may be that the arrangement contemplated by the Commission cannot feasibly be implemented in circumstances where a business has self-insured against these categories of risks. In particular, the difficulties that the Commission and EDBs would face in attempting to give effect to such a scheme would include:

- *defining the events that would be covered by the allowance and, just as importantly, those that are not, eg, whether a magnitude 6.0 earthquake would be covered, as opposed to a magnitude 7.0 or higher (bearing in mind that it is the effective local magnitude that really matters, in any event);*

- *calculating the premium in an objectively verifiable way, since:*

  - *it may not be feasible to obtain a quote from external insurers since they may not be prepared to offer coverage, or the proposed premiums may be too high to serve as a reasonable comparative benchmark; and*

  - *it may be beyond the capabilities of the organisation (or even an actuary) to produce an alternative objective, verifiable estimate of the expected cost of addressing the consequences of such events;*

- *ensuring that the notional up-front premiums do not significantly over- or under-compensate EDBs over time in relation to such events, ie:*

  - *if an event is more extensive than expected, or occurs before sufficient funds have accumulated, then the business will have to recover the residual (which may be substantial) through other means, such as price increases; and*

  - *if an event is more benign than anticipated, the Commission will have allowed the business to earn funds that it did not need, and could have been put to more productive uses, such as investment in hospitals or schools.*

- *determining the circumstances in which it may be permissible – even desirable – for a business to reduce its level of up-front contributions, or to redeploy a portion of the accumulated funds to other uses.*

In our opinion, the administrative costs associated with overcoming these challenges may outweigh any benefit. For this reason, the arrangement should either not be applied to these types of events or, at the very least, be voluntary so as to leave businesses with the option of remaining uninsured. Moreover, if an EDB does receive an up-front allowance in the DPP for such events, this should not preclude subsequent price increases if that event is more extensive than expected, or occurs before sufficient funds have accumulated.

Indeed, it is precisely because of this prospect of under-compensation (and the equivalent prospect of over-compensation) through the DPP that, on balance, it may be best to limit the application of any such scheme to events that are routinely dealt with by insurance markets. Put another way, it may be best to allow businesses to recover the costs of such events from their customers as and when they happen, rather than to provide a speculative allowance in the DPP. However, in order for that to work, the regulatory rules underpinning the DPP may require some revision to allow the price path to be re-opened when catastrophic events occur.

Finally, New Zealand's market risk premium, as assessed before the Canterbury earthquakes, did not include an 'implicit insurance premium' on a national basis. Such a finding would be

demonstrably inconsistent with the way in which the Commission has calculated the regulatory WACC. Businesses are therefore not already being compensated through their existing prices for the potential costs associated with uninsured risks".

Status of information already provided to the Commission by suppliers

9 Orion considers that wherever possible the Commission should use the information that they already have. However in Orion's case due to the difficulties we faced as a result of the Canterbury earthquakes the Commission did not require Orion to comply with its s53ZD information request and also under the circumstances Orion was not included in the July 2011 Draft Decision.

10 As a result of the various earthquakes since September 2010 there has been a significant change in Orion's customer base and expected demand (and therefore our revenue under the current default price path), as well as in our current asset base and future capital and operational expenditure needs.

11 We are carrying out further assessment of the state of the assets that form Orion's network, a process that will take a number of years. Together with giving consideration to the appropriate network architecture to reflect the additional knowledge of the seismic condition's that the network must be able to operate within. We also need to consider changes in loading patterns across the network, in the next few years, as new subdivisions are developed and old ones abandoned. We also need to build back into the network a level of resilience that will allow us to cope with future natural disasters such as windstorms, cyclones, floods, snow storms, tsunamis etc .

12 While we are not sure specifically what information was requested in the s53ZD notices, had we been in a position to have supplied any information we expect that any information supplied at that time would be of little or no relevance to our present position.

13 We are therefore unsure in Orion's case whether the Commission will be in a position to rely on information previously supplied.

RAB values

14 The paper indicates that it is particularly interested in finalising the initial RAB values and envisages that all adjustments could be completed 1 March 2012. We can advise that Orion has not yet started this process of determining our initial RAB value but we hope to commence this process by March 2012 .

Application of claw back

15 The Commission has asked for comment on whether the approach to claw back must be included in the stand alone input methodology (IM).

16 We consider that there are only two cases relevant to a starting price adjustment where claw back is permitted. These cases are:

16.1 under s54K, where claw back can be applied only once and then only at the Commission's discretion, and

16.2 under s53ZB, on an ongoing basis the Commission must apply claw back if a default and customised price quality path is reset subject to the conditions set in s53ZB(2).

17 In both these cases Orion considers that claw back must be considered as part of the starting price input methodology even though in the future it may only be applied rarely following a change in input methodologies that result from a s52Z appeal *and* if the changed input methodologies had they applied at the time the price quality path was set would have resulted in a materially different price path being set.

18 By definition claw-back is a reference to the Commission doing either of the following:

> *"(a) requiring a supplier to lower its prices on a temporary basis in order to compensate consumers for some or all of any over-recovery that occurred under the prices previously charged by the supplier:*
>
> *(b) allowing a supplier to recover some or all of any shortfall in its revenues that occurred under the prices previously charged by the supplier."*

as such we believe that by definition claw back is part of the starting price that the Commission would finally determine and therefore should be included as part of a starting price adjustment IM.

19 We also note that the prices in the "*specification of price IM"* for both default and customised price-quality paths implicitly include via the recoverable cost section of the IM s(3.1.3 (1)(g) claw back applied by the Commission under section 54K(3) or 53ZB(3)).

20 In terms of how such a methodology is best articulated, we concur with the ENA that the methodology should cover the following points:

- *the criteria the Commission will use to determine whether it will apply claw-back in instances where that choice lies with the Commission (e.g. as part of a DPP reset pursuant to s 54K (3));*
- *the inputs and calculations the Commission will use in making a claw-back determination. Once the Commission has determined that claw-back is to be*

applied, we expect the calculation of claw-back to be relatively mechanical and the inputs to that calculation to be able to be specified in advance (e.g. the WACC value to be used and how it is used); and

- *the criteria the Commission will use when making judgements as part of the claw-back determination, where the steps are not mechanical. For example, this should include the criteria the Commission will use to ensure s 52D (2), to minimise undue financial hardship to the supplier, has been met.*

21 We believe that the Commission must also consider how it will deal with providing for claw back over the short period remaining in this price determination period. Particularly if the application of this claw back over the remaining two years of the price path results in rate shocks or financial hardship greater than the Commission has considered appropriate in its July 2011 draft decision on the reset of the DPP.

Revenue and expenditure projections

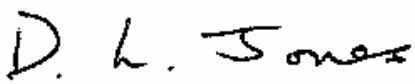
22 Orion agrees that in general where the Commission is relying on generalised forecasts such as data on electricity demand growth supplied by the Electricity Authority, statistically derived price indices or data on profitability it is appropriate to rely on updated information where it would improve the accuracy of the Commission's projections.

23 However in Orion's case if the Commission uses generalised forecasts in a similar manner to that outlined in the 2011 draft decisions for such things as variable real revenue growth (derived from regional throughput growth forecasts), fixed revenue growth (derived from regional population growth forecasts, and capacity revenue growth (derived from regional GDP growth forecasts) even if these forecasts are updated the results are unlikely to bear any resemblance to our current reality.

Concluding remarks

24 Thank you for the opportunity to make this submission. Orion does not consider that any part of this submission is confidential. If you have any questions please contact Dennis Jones (Industry Developments Manager), DDI 03 363 9526, email dennis.jones@oriongroup.co.nz.

Yours sincerely



Dennis Jones
Industry Developments Manager

Appendix: The Treatment of Self-Insurance

NERA
ECONOMIC CONSULTING

The Treatment of Self-Insurance

A Report for Orion New Zealand Ltd

25 January 2012

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Contents

1. Introduction

This report has been prepared by NERA Economic Consulting (NERA) at the request of Orion New Zealand Limited (Orion). It addresses some of the questions posed by the Commerce Commission (Commission) in relation to the treatment of self-insurance under the default price-quality path (DPP) to be applied to electricity distribution businesses (EDBs) under Part 4 of the *Commerce Act 1986* (the Act). In particular, in its recent Process and Issues Paper,[1] the Commission has raised the possibility of including an explicit 'up-front' allowance for self-insurance in the DPP, which would then feed-into the prices that customers pay for electricity distribution services.

This report considers the circumstances in which it might be appropriate to make such an allowance and, equally, when it is likely to be inappropriate or impracticable. The topic of insurance is naturally of great interest to Orion in light of the damage caused by the Canterbury earthquakes and the ongoing aftershocks. This level of interest is amplified by the fact that a large number of its assets were uninsured (as a result of a pragmatic decision[2]) prior to the two major earthquakes in 2010 and 2011. At that time, Orion had policies with external insurance providers procured by means of a competitive external tender process (as opposed to captive insurers[3]) that covered:[4]

- accidental physical loss or damage to buildings, plant, equipment, district and network substation buildings and contents, based on assessed replacement values;[5]
- its pole-mounted transformers and substation equipment, including ground-mounted transformers; and
- any reduction in electricity network delivery revenues and/or increased costs of working as a result a loss to its insured assets.

However, its policies did not extend to overhead lines and underground cables – which comprised approximately 65 per cent[6] of the $2 billion replacement cost of Orion's system fixed assets. We understand that these assets have been very expensive to insure internationally since Hurricane Katrina, and so Orion made the sound commercial decision to

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1 Commerce Commission, *Additional Input Methodologies for the Default Price-Quality Paths – Process and Issues Paper*, 9 December 2011 (hereafter: 'Process and Issues Paper').

2 Appendix A provides more background to Orion's decision.

3 Using a captive insurer is a risk management technique by which a business forms its own insurance company subsidiary to finance its retained risks in a formal, insurance-like structure.

4 In addition, Orion applied its risk management policies as disclosed repeatedly in successive Asset Management Plans. In particular, it spent many years 'earthquake proofing' assets such as substations.

5 Orion New Zealand Limited, *10 year Asset Management Plan – from 1 April 2010*, p.247.

6 *See:* Appendix A.

remain uninsured.[7] The existing DPP prices, which are based largely upon the previous Part 4A price *thresholds*, do not include an explicit allowance for these uninsured assets.[8]

Orion's recent experiences consequently serve as a useful case study for the possibilities that the Commission has set out in its Process and Issues Paper. We have been asked to review the framework that the Commission is contemplating and, in particular, to consider how effectively it could deal with low-likelihood but high cost events such as the Canterbury earthquakes. The remainder of this report is structured as follows:

- section two provides a brief overview of the possibilities that the Commission has raised in its Process and Issues Paper in relation to self-insurance;
- section three examines the practicability and desirability of providing an up-front allowance for potential losses when businesses have self-insured (or remained uninsured) against relatively predictable, low-cost events;
- section four considers whether it is feasible to make such an allowance when businesses have self-insured (or remained uninsured) against low-likelihood but high cost events such as the Canterbury earthquakes;
- section five assesses whether the market risk premium (MRP) component of the cost of equity, as assessed before the Canterbury earthquakes, included an 'implicit insurance premium' on a national basis, which might then obviate the need for any further allowance for self-insured risks in the DPP;
- section six concludes; and
- appendix A provides some more background to Orion's commercial decision to leave its overhead lines and underground cables uninsured.

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7 Note that Orion did not set aside funds that could then be used to meet the costs of damage to those assets arising from adverse events. Rather, it chose to meet those costs as and when they occurred. Appendix A provides more details.

8 The previous Part 4A price thresholds were determined predominantly on the basis of comparative efficiency benchmarks. No allowance was included for self-insurance.

2. The Commission's Proposal

In this section we provide a brief overview of the possibilities that the Commission has raised in its Process and Issues Paper in relation to self-insurance.

2.1. Insurance and the DPP

There are two ways in which a business can manage the costs of risks. The first is by placing a policy with an external insurance business to guard against losses arising from certain adverse events. The business pays premiums to the insurance company and, if an adverse event occurs that is covered by the insurance policy, it receives a pay-out. The net effect is that its near-term costs increase, but its future costs are lower than they otherwise would be if the adverse event occurs.

The second option is for the business to self-insure. This can be done either:

- by setting aside funds (perhaps with a captive insurer[9] that the business establishes) that it can subsequently use to meet at least part of the costs of an adverse event when it occurs (in the remainder of this report we refer to this as 'self-funding'); or
- by simply bearing the costs arising from an adverse event when it happens – potentially by passing those costs on to its customers in the form of higher prices (in the remainder of this report we refer to this as remaining 'uninsured').

The costs associated with EDB's placing insurance with external providers would be captured within the Commission's proposed formulation of the DPP. Specifically, those costs would form part of an EDB's operating expenditure 'building block', which would then feed into its price-path.[10] The business would receive up-front compensation for the cost of the policy in the form of higher prices, and would recover any subsequent losses stemming from the adverse event through the resulting pay-out.[11] The Commission is now considering if and how the DPP should cater for circumstances in which a business has elected to self-insure.

2.2. Self-insurance

The Commission is considering the creation through regulation of a 'quasi-market' for self-insured risks that would seek to mimic the costs that might otherwise be paid to external insurers.[12] These 'notional self-insurance premiums' could then be incorporated into an EDB's DPP. The business would presumably then have reduced scope to increase its prices if

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9 We note that an insurance captive may itself reinsure a portion of the self insurance implied by such an arrangement.

10 Specifically, the DPP is likely to be based on (amongst other things) each supplier's 'simplified building blocks', which are to be informed by supplier-specific projections over the regulatory period. Operating expenditure will be a key building block, and the costs associated with procuring insurance from external providers will be an important component. The other key ingredient is revenue growth projections for each supplier. *See:* Process and Issues Paper, para.42.

11 In other words, the external provider would compensate the EDB for the costs arising from the adverse event and there would be no need (or at least a reduced need) to subsequently increase the DPP.

12 *See:* Process and Issues Paper, paras.160-161.

the relevant adverse event occurred, since it would be deemed to have already been compensated for that contingency in its prices.

The Commission has indicated that the information requirements for customised price-quality path (CPP) proposals are likely to provide a reasonable indication of the type of information it might require in order to set any such self-insurance allowance for the DPP. This information may include (but would not necessarily be limited to):[13]

- a description of the uncertainties (ie, the risk or events) covered by the allowance;
- the methodology used to calculate the self-insurance premium (eg, probability multiplied by consequence), supported by the report from an actuary; and
- any quotes obtained by external insurers, with supporting documentation.

The intention appears to be to facilitate – perhaps even to encourage – a greater degree of 'self-funding' through the regulatory arrangements for the DPP. Indeed, it may even be the Commission's intention to *require* businesses to be compensated up-front for the expected costs of all of foreseeable self-insured risks,[14] so as to reduce[15] the number of 'uninsured events' that might result in significant 'one-off' price increases.[16] At this early stage, the Commission has sought views on:

- whether an up-front, notional self-insurance allowance should be provided for in the DPP and, if so, how such a premium might be calculated in an objectively verifiable way;
- whether this should only be available if suppliers set aside any funds that it has provided for, and how it could verify that they have done so;
- what, if any, benefit for consumers can be identified that would justify allowing a notional self-insurance premium where funds are not being set aside; and
- whether New Zealand's MRP, includes an 'implicit insurance premium' on a national basis and, if so, whether any further allowance would be needed in any event.

In our opinion, the practicability of providing a notional self-insurance allowance in the DPP depends on the type of risk that is being self insured. It may well be feasible (although perhaps unnecessary) to incorporate into the DPP an 'up-front' allowance for relatively predictable, frequently occurring, low-cost events. However, it may be much less practicable to incorporate such an allowance for low-likelihood, high cost events, such as the Canterbury earthquakes. We elaborate in the following sections. We then explain why New Zealand's MRP does not include an 'implicit insurance premium' to compensate for such risks.

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13 *See: Commerce Act (Electricity Distribution Services Input Methodologies) Determination 2010*, Schedule D15(1)(a).

14 All foreseeable risks that are not otherwise covered by insurance policies procured from external providers.

15 As we explain further below, this will not eliminate all uninsured events, since not all adverse events can be foreseen, and therefore insured against.

16 Although this facet of the Commission's preliminary thinking is unclear, it seems to have some reservations about self-insurance. For example, the Commission has observed that when businesses seek to fully recover losses after an event, they effectively pass those costs on to future consumers. However, in our view, the extent of any such inter-temporal wealth transfer is likely to be modest, given that the rate of customer turnover in the electricity distribution sector is not all that high.

3. Predictable, Low-Cost Events

In this section we examine the practicability and desirability of incorporating a notional, up-front premium in the DPP when a business has self-insured against the relatively predictable, low-cost events that are routinely dealt with by insurance providers. We begin by discussing the defining characteristics of such events.

3.1. Defining Characteristics

An EDB will face many routine risks that it can forecast with a reasonable degree of confidence. For example, it will know that, in any given year, some of the vehicles in its fleet will be involved in traffic accidents. As we noted earlier, there are two ways in which the business can manage those anticipated costs:

- by taking out an insurance policy from an external provider, paying premiums throughout the course of the year and receiving pay-outs when accidents happen;
- by self-insuring, ie:
  - by setting aside the monies that it expects to incur repairing and replacing vehicles throughout the year, and drawing down those funds when accidents happen; or
  - by simply meeting the costs of repairing and replacing vehicles throughout the year as and when accidents occur.

The EDB and its insurance provider are both likely to have a good idea of the probability of accidents occurring and their consequences provided there is no significant asymmetry of information between them.[17] For example, both the EDB and the insurance company may estimate that, in any given year, two vehicles will be written off, on average, and ten others will require major repairs. The resulting expected cost of accidents[18] will therefore govern:

- the premiums that an EDB would need to pay to the insurance company to obtain coverage for such risks;[19]
- the amount of money that an EDB is likely to set aside to deal with such contingencies if it chooses to self-fund; and
- the sum that an EDB would anticipate paying for repairs and replacements if it decides to remain uninsured.

The accumulated premiums that an EDB would need to pay to an insurer over the course of a year will be broadly equivalent (potentially identical) to the level of self-funding, ie, both will be based on the forecast cost of accidents. A business that remains uninsured may ultimately pay more or less than this forecast level, depending upon whether the number of crashes is greater or less than usual in a given year, ie:

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[17] An asymmetry of information arises when one party has more relevant information than the other.

[18] This is calculated by multiplying the probability of accidents by their expected cost.

[19] Assuming that the EDB seeks to fully insure those risks with the external provider.

- if two more vehicles than average are written off over the course of a year, an uninsured business will incur greater costs than if it had been insured or if it had self-funded;[20] and
- if two less vehicles than average are written off over the course of a year, the business will save money by not having insured or self-funded.

However, because replacing or repairing a vehicle is not expensive,[21] the difference between the outturn and forecast cost of managing accidents in any given year is unlikely to be substantial in absolute terms. Indeed, even if there are twice as many crashes in a year than normal, an uninsured business may not end up paying much more than it would otherwise have outlaid in premiums over the same period.

In other words, a distinguishing feature of predictable, low-cost events is that, regardless of whether a business takes out an insurance policy, self-insures or remains uninsured, the outturn costs to it of each option are likely to be broadly comparable and, in some cases, identical. Moreover, the insurance company would not expect to pay out more in claims than it had received in premiums. It is in these circumstances, when the probability and consequences of events are relatively predictable (at least over a large enough pool of risks), that insurance markets function most efficiently.

In particular, insurance companies will be prepared to offer policies, and the associated premiums can be expected to be a reasonably accurate reflection of the underlying risks, since probabilities and consequences can be reasonably estimated. Similarly, businesses can make informed choices about whether to self-fund and the quantum of funds that should be set aside, since they will also be able to judge the probabilities and consequences with a reasonable degree of precision.

3.2. Implications for the Commission's Proposal

The up-front compensation arrangement contemplated by the Commission in its Process and Issues Paper could potentially be applied to situations in which a business has self-insured against predictable, low-cost events. In these circumstances, insurance markets can be expected to function efficiently and it should be relatively straightforward for an EDB:

- to define the events or uncertainties covered by the notional self-insurance premium (and, just as importantly, to know what events are *not* covered by the allowance); and
- to calculate the premium in an objective and verifiable way, since:
  - it should be well within the capabilities of the organisation (or an actuary) to estimate the expected cost of such events over the course of a regulatory period; and
  - it should be feasible to obtain a quote from external insurers that can then serve as a comparative benchmark.

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[20] It is often because of this possibility of incurring a greater quantum of costs that businesses will take out an insurance policy. In other words, businesses (and consumers) are often 'risk averse'.

[21] Or, more accurately, the costs are not substantial in the context of a large organisation such as an EDB.

In other words, arriving at a reasonable, defensible estimate of the up-front notional self-insurance premium to be included in the DPP should not be overly challenging. Moreover, because the events that we are contemplating are 'low cost' (at least in relative terms) there appears to be no obvious reason to limit the application of such a premium to businesses that had self-funded, as opposed to remaining uninsured. This is because the risk of 'moral hazard'[22] is low.[23]

In other words, *in principle*, the Commission's preliminary proposal could be made to work for these types of self-insured events. Indeed, the approach that the Commission has adopted to determine self-insurance allowances for CPPs would serve as a useful blueprint.[24] However, it is unclear whether such an arrangement – conceivable though it may be – would deliver any real benefits *in practice*. Indeed, if no up-front allowance is made for these types of uninsured risks, it is not obvious that the DPP would be materially different, since outturn costs of those risks are likely to be reflected in EDBs' operating expenditure (opex) allowance in the DPP in any event, ie:

- to estimate the opex component of the DPP, the Commission is proposing to project each supplier's disclosed level of opex from the 'base year' immediately preceding the regulatory period; and
- the disclosed level of opex in the base year will therefore include the costs incurred addressing adverse events against which it had not procured insured, eg, the costs that the EDB incurred in that year repairing and replacing uninsured vehicles.

In other words, the DPP will *already* include an allowance for low-cost uninsured events that occur routinely throughout the year, since they will be reflected in the opex allowance. There may still be some benefit in allowing an up-front premium when the costs incurred through self-insurance in the base-year are expected to differ significantly from those anticipated going forward. Although the prospect of a significant misalignment emerging may not be particularly high (given the characteristics of the events in question[25]), it is not inconceivable.

In other words, the potential benefit to be obtained from providing an up-front allowance in the DPP for those businesses that have self-insured against risks that are routinely dealt with by insurance markets depends on the particular circumstances. For this reason, if the Commission does choose to develop such an arrangement, we consider that it would be best left to the individual businesses to decide whether it is to receive an up-front premium, or whether it remains 'uninsured'. There would also be no obvious reason to limit the application of that mechanism to instances of self-funding.

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22 Moral hazard is a situation where the conduct of one party may change to the detriment of another after the transaction has taken place. For example, a person with insurance against automobile theft may be less cautious about locking her car, because the negative consequences of vehicle theft are (partially) the responsibility of the insurance company.

23 Indeed, provided that the premium relates to routine risks, there is little prospect of a business taking the up-front payment, not setting it aside, and then not having sufficient funds to deal with the consequences of an adverse event when it happens. Returning to our earlier example, a business that has received a notional self-insurance premium and not set it aside should not need to raise additional funds (eg, through a price increase) if there is an atypically high number of accidents in its vehicle fleet in a year.

24 *See: Commerce Act (Electricity Distribution Services Input Methodologies) Determination 2010*, Schedule D15.

25 Indeed, even if there are twice as many instances of an adverse event in the base year than normal, an uninsured business may not end up paying much more than it would otherwise have outlaid in premiums over the same period.

4. Low-Likelihood but High-Cost Events

In this section we examine whether it is feasible to incorporate a notional, up-front premium in the DPP when a business has self-insured against low-likelihood but high-cost events that are *not* routinely dealt with by insurance providers. We begin by providing an overview of the defining characteristics of such events.

4.1. Defining Characteristics

An EDB will face a number of improbable risks that is *cannot* forecast with a reasonable degree of confidence, but that may have a substantial effect on its operations if they transpire. For example, it will know that, in any given year, there is a chance – albeit a small one – that it could be affected by natural disasters such as windstorms, cyclones, floods, tsunamis, volcanos or earthquakes. It may also be affected by events that it cannot foresee – the proverbial 'unknown unknowns'. In *principle*, a business can manage the associated costs either:

- by taking out an insurance policy from an external provider, paying premiums throughout the course of the year and receiving pay-outs when those events happen;
- by self-insuring, ie:
  - by setting aside the monies that it expects to incur dealing with the consequences of those events, and drawing upon those funds when they occur; or
  - by simply meeting the costs of when those incidents when they take place.

However, in *practice* it may not be possible or feasible to procure insurance from an external provider, or to set aside the funds to manage all such contingencies. The basic reason for this is that neither the EDB nor the insurance company may have a good understanding of the likelihood of such events occurring, or the potential cost consequences if they do. For example, there may be a substantial degree of uncertainty surrounding:

- the types of event that might occur, eg, although earthquakes are a common occurrence in New Zealand, the two major Canterbury earthquakes occurred on previously unknown fault lines and few, if any, would have predicted their magnitude;[26]
- the likelihood of those different types of events taking place in any given year, eg, whether they will occur once every 25 years, 50 years, 100 years and so on; and
- the potential costs that might be imposed on the business by those events, eg, few would have predicted the scale of the damage done by the Canterbury earthquakes, and Orion is still to finally determine the costs it will incur rebuilding its network and the lost revenue due to customer change, 'red-zoning', etc.

An insurance company may therefore find it difficult – perhaps even impossible – to calculate a reasonable premium to charge an EDB in relation to such events. It will also be aware that,

[26] Orion had carried out substantial preparatory work based on an event occurring on the known Alpine fault.

although no claims may be made in most years, when the adverse event does happen, the pay-out it will have to make at that time may be substantial. This sets these types of events apart from the relatively predictable, low-cost events described earlier, ie:

- when an insurance company provides a policy in relation to predictable, low-cost events such as damage to vehicles arising from accidents, in any given year it does not expect to pay out significantly more in claims than it has received in premiums; but
- if an insurance company decides to offer a policy that covers cost arising from unpredictable, high-cost events such as earthquakes, in any given year, either:
  - the adverse will not happen, and it will collect significantly more in premiums that it will pay out in claims (ie, nothing); and
  - the adverse event will happen, and it will pay out significantly more to the insured party that it will collect in premiums; and
- the insurer will also find it more difficult to diversify its risks so as to mitigate its exposure to these types of adverse events; ie:
  - a provider of car insurance can diversify its risk by insuring a large number of cars, eg, for every car involved in an accident there will be many that are not; but
  - it is far more difficult to diversify the risks posed by events such as earthquakes, since they may affect all categories of insured assets simultaneously.

In these circumstances, external insurance providers may be reticent to offer insurance for the full range of such events in the first place, or they may demand very high premiums to protect them against the possibility of large pay-outs. The result may be either that an EDB simply cannot insure all such contingencies, or can only do so on terms and conditions that it considers to be unreasonable, given its own perceptions of the risk. An EDB may also find if very difficult to self-fund. In particular:

- because the types of event that might occur is likely to be unclear, it will be difficult for an EDB to gauge the level of funds that it should be putting aside and whether it should be a one-off 'lump-sum' or a series of regular (say, annual) contributions;
- there is therefore a high probability that the business will set aside too much money, or too little:
  - if too little is set aside,[27] then the business will have to recover the residual through other means (such as through price increases); and
  - if too much is set aside, the business will forego the opportunity to divert the unnecessary funds to more productive uses; and
- because the events in question are, by definition, extremely rare, there is likely to be growing pressure from shareholders to reduce or redistribute those funds for other purposes if many years pass without incident.

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[27] This might happen if, say, an adverse event occurred only shortly after an EDB started making contributions to an accumulating 'self-insurance' fund.

In other words, when events are unlikely, but entail very high-costs that cannot easily be predicted, insurance markets may not function as effectively. Insurance companies may not be prepared to offer policies, or the associated premiums may be prohibitively expensive. Businesses may also be unable to make informed choices about the quantum of funds that they should set aside if they decide to self-fund. For these reasons, an EDB may sometimes have no other feasible option but to remain uninsured.

Orion's recent experience with its overhead lines and underground cables is illustrative. Since Hurricane Katrina, we understand that it has been very expensive to insure overhead lines and underground cables. The events in New Orleans provided an indication of the magnitude of the damage that can be done to such assets by a natural disaster and led to a sharp increase in premiums. Orion considered that those premiums were prohibitive given its perception of the underlying risks and made the commercial decision to remain uninsured.[28]

4.2. Implications for the Commission's Proposal

The up-front compensation arrangement contemplated by the Commission in its Process and Issues Paper are likely to be very difficult to apply to situations in which a business has self-insured against unpredictable, high-cost events such as natural disasters. We explained above that insurance markets often cannot deal with these contingencies as effectively as the routine events described in section 3.1. In our opinion, it is unlikely that a set of regulatory arrangements could do any better.

Indeed, the complexities associated with applying the type of 'pre-funding' arrangements mooted by the Commission to contingencies such as earthquakes and tsunamis would be substantial. In our opinion, these may render any such exercise unworkable. The principal challenges would include (but would not be limited to):

- defining the events that would be covered by the allowance and, just as importantly, those that are not, eg, whether a magnitude 6.0 earthquake would be covered, as opposed to a magnitude 7.0 or higher (bearing in mind that it is the effective local magnitude that really matters, in any event);[29] and
- calculating the premium in an objectively verifiable way, since:
  - it may not be feasible to obtain a quote from external insurers since they may not be prepared to offer coverage, or the business may consider the proposed premiums to be prohibitively expensive; and
  - it may be beyond the capabilities of the organisation (or even an actuary) to produce an accurate objective, verifiable estimate of the expected cost of addressing the consequences of such events.

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[28] *See:* Appendix A.

[29] The impact of the February 2011 6.3 magnitude earthquake on Orion's network was in the vicinity of ten times greater than the larger, magnitude 7.1 earthquake of September 2010 and the magnitude 6.4 earthquake of June 2011, due to its location and characteristics. In other words, its effective local magnitude was significantly larger.

A further problem is that the inherent doubt around the scale and timing of such events will mean that there is a high probability that the notional up-front premiums will over- or under-compensate EDBs over time. Neither outcome is desirable, ie:

- if an event is more extensive than expected, or occurs before sufficient funds have accumulated, then the business will have to recover the residual (which may be substantial) through other means, such as price increases;[30] and
- if an event is more benign than anticipated, the business will have received more revenue than it needed, when those funds could have been put to more productive uses throughout the economy.

There are also important questions about the restrictions that might be placed on the use of the accumulated funds over time. Suppose, for the sake of illustration, that a business sets aside $10 million per annum in up-front premiums to address the potential costs of natural disasters, and 50 years pass without incident.[31] By that time, the accumulated sum will be substantial, which is likely to necessitate a further layer of complexity to set out the circumstances in which an EDB can reduce or redeploy its contributions. In other words, the Commission's proposal may ultimately have consequences for firms' capital structures.

In our opinion, the uncertainty and controversy that will inevitably surround the application of such arrangements to low-likelihood but high-cost events may very well prove insurmountable. The administrative costs of introducing a 'quasi-market' for these types of risks would be very high, and the potential benefits few. It follows that if a risk cannot be insured in normal insurance markets at a reasonable cost, it is likely to be most efficient for the regulatory arrangements to allow EDBs to recover the costs of those events when they happen, ie, to remain uninsured.

Finally, if the Commission was to effectively compel businesses through the compensation arrangements in the DPP either to procure insurance from external providers, or to self-fund, this may affect the pre-emptive actions that they take to manage the consequences of such events. For example, Orion has spent significant sums in recent years 'earthquake proofing' assets such as substations. If it had not undertaken this investment in 'risk management', the damage to its network may have been significantly more extensive, as would have been the effect on customers with respect to outages. Careful thought would therefore need to be given to the potential effects of pre-funding arrangements on businesses' incentives to undertake these activities.

For these reasons, the type of arrangement that the Commission has preliminarily proposed may not be practicable when an EDB has self-insured against a low-likelihood, but high-cost event, such as the Canterbury earthquakes. In our opinion, any such scheme *should not be applied to such events* or, at the very least, *be voluntary*, ie, businesses should at least have the option of remaining uninsured. Moreover, if an EDB does receive an up-front allowance

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[30] This is not undesirable *per se*, but does serve to undermine the purpose of incurring the administrative costs to allow the up-front premiums to be paid in the first place.

[31] As noted earlier, one of the potential problems with low-likelihood but high cost events such as earthquakes is defining when a qualifying event has occurred.

in the DPP for such events, this should not preclude subsequent price increases if that event is more extensive than expected, or occurs before sufficient funds have accumulated.

Indeed, it is precisely because of this prospect of under-compensation (and the equivalent prospect of over-compensation) through the DPP that, on balance, it may be best to limit the application of any such scheme to events that are routinely dealt with by insurance markets. Put another way, it may be best to allow businesses to recover the costs of such events from their customers when they happen, rather than to provide a speculative allowance in the DPP. However, in order for that to work, the regulatory rules underpinning the DPP may require some revision.

Specifically, it may be appropriate for the input methodology (IM) that the Commission is currently developing for the DPP to allow the price-path to be re-opened following a catastrophic event.[32] This option was not available to Orion at the time of the Canterbury earthquakes (it was on the 'interim' DPP at the time). Moreover, even if there had been the option of applying for a CPP (which there was not), Orion could not have done so, since it would not have been able to meet the information requirements.

In particular, Orion did not know the full extent of the damage to its network (and so the costs that it would need to incur to repair and/or replace those assets) or the overall reduction in its customer base. In other words, Orion knew that its costs had gone up substantially and that its revenue had fallen away – but did not have a clear grasp of the precise magnitude. As presently formulated, the Part 4 arrangements are not well suited to, and perhaps incapable of dealing with such circumstances, which could certainly reoccur.

In order to address the type of situation that confronted Orion, the Commission would need to include scope to reopen the DPP so as to allow price increases, but perhaps without the supporting information that might normally expect to accompany an application for a CPP. There might also be scope to subsequently revisit and revise those changes once more robust data came to light. Alternatively, it may be more efficient simply to exempt businesses in these circumstances from the regulatory arrangements altogether through bespoke legislation such as the *Canterbury Earthquake Recovery Act 2011* (CERA).

[32] The Commission's IMs currently only allow a CPP to be reopened following a catastrophic event. *See: Commerce Act (Electricity Distribution Services Input Methodologies) Determination 2010*, 5.6.1.

5. Existence of Implicit Insurance Premium

In this section we examine whether New Zealand's MRP, as assessed before the Canterbury earthquakes, would have included an 'implicit insurance premium' on a national basis. The Commission has implied that, if such a premium exists, there would be no need for it to compensate businesses for the potential costs of adverse events – either by way of an up-front notional premium or through subsequent price increases – since it would have already done so through the regulatory weighted average cost of capital (WACC).

In order for such a premium to exist, the regulatory WACC would need to exceed the return that debt and equity investors expect to earn from the business by an amount equal to the expected cost of self-insurance. Put another way, the return that debt and equity providers actually anticipated earning on every dollar or investment in a business would be equal to the regulatory WACC *less* the annual expected costs that a business would be likely to incur in dealing with events against which it had self-insured. By way of example:

- if the WACC provides a return of $100 million per annum;
- but debt and equity investors only expect a return of $90 million per annum; then
- the implicit insurance premium would be $10 million per annum.

In other words, the implicit insurance premium would drive a 'wedge' between investor's expectations and the regulatory WACC. In our opinion, such an outcome is not plausible, since it is demonstrably inconsistent with the way in which the Commission has calculated that parameter. The fundamental purpose of the capital asset pricing model (CAPM) underpinning the WACC is to gauge the return that debt and equity providers expect to receive on their investments, ie:

- the cost of debt reflects the returns that investors expect to earn on corporate bonds, and is estimated based on observed yields on those instruments; and
- the MRP component of the cost of equity reflects that margin that an investor would expect to earn on a diversified market portfolio in excess of the risk-free rate, and is also based on the historic movements in these parameters.

For these reasons, neither the cost of debt nor equity (which collectively comprise the cost of capital) incorporate an implicit additional allowance for the expected cost of self insurance. In particular, there is no adjustment made to the outturn observations underpinning the MRP (eg, to the historical margins earned on a diversified portfolio) to include such a premium. It follows that New Zealand's MRP did not already include an allowance for self-insured risks, prior to the Canterbury earthquakes, and so businesses have not already been compensated for those risks in their prices.

Even if such a premium did exist (which it does not), it is unclear how the Commission could take account of it in a robust manner. Suppose, for example, that Orion decided to insure its overhead lines and underground cables with an external provider. It would presumably seek to recover the costs of those premiums through its operating cost allowance in the DPP. However, it would also be compensated for those costs through the implicit premium in the

WACC. In other words, unless steps were taken, Orion would stand to recover those costs twice: once explicitly and once implicitly.

This means that the Commission would presumably need to make a judgement about whether the insurance costs had been prudently and efficiently incurred – a challenging task, given the uncertainties intrinsic to these types of events. It would then need to adjust Orion's WACC to remove the implicit insurance premium so as to avoid any 'double-counting'. In our opinion, any such exercise would be subjective, controversial and, ultimately unnecessary for the reasons set out above.

Finally, it is worth noting that, even if the MRP included an implicit premium before the earthquakes (which it did not), it is quite plausible – even likely – that it would have increased materially *after* those events in light of the additional information about the potential risk exposure. Indeed, Orion has advised us that the premiums and excesses it must pay under its existing policies have increased substantially.[33] Any self-insurance premium might be expected to have increased by a similar magnitude.

[33] Recall that these policies cover material damage and business interruption losses to assets such as buildings, contents and substations – but not overhead lines and underground cables. Orion renewed these policies, effective from 1 October 2011, with the following outcomes:

- its earthquake deductibles for those assets have increased to 10 per cent per site (and 15 per cent for buildings constructed prior to 1935);
- any earthquake claim is now restricted to a maximum of $100 million in respect of those insured assets; and
- its annual premium to insure those assets has increased from $0.35 million to just under $1.8 million – a more than 400 per cent increase.

6. Conclusion

In its Process and Issues Paper, the Commission has raised the possibility of including an explicit 'up-front' allowance for self-insurance in the DPP. In our opinion, this type of arrangement could feasibly be implemented in circumstances where a business has self-insured against a risk that is routinely dealt with by insurance markets. However, the potential benefits from doing so depend upon the particular circumstances. For this reason, if the Commission does choose to develop such an arrangement, we consider that it would be best left to the individual businesses to decide whether it is to receive an up-front premium, or whether it remains 'uninsured'. There would also be no obvious reason to limit the application of that mechanism to instances of self-funding.

Low-likelihood but high-cost events such as the Canterbury earthquakes are an altogether different matter. In our opinion, it may be that the arrangement contemplated by the Commission cannot feasibly be implemented in circumstances where a business has self-insured against these categories of risks. In particular, the difficulties that the Commission and EDBs would face in attempting to give effect to such a scheme would include:

- defining the events that would be covered by the allowance and, just as importantly, those that are not, eg, whether a magnitude 6.0 earthquake would be covered, as opposed to a magnitude 7.0 or higher (bearing in mind that it is the effective local magnitude that really matters, in any event);
- calculating the premium in an objectively verifiable way, since:
  - it may not be feasible to obtain a quote from external insurers since they may not be prepared to offer coverage, or the proposed premiums may be too high to serve as a reasonable comparative benchmark; and
  - it may be beyond the capabilities of the organisation (or even an actuary) to produce an alternative objective, verifiable estimate of the expected cost of addressing the consequences of such events;
- ensuring that the notional up-front premiums do not significantly over- or under-compensate EDBs over time in relation to such events, ie:
  - if an event is more extensive than expected, or occurs before sufficient funds have accumulated, then the business will have to recover the residual (which may be substantial) through other means, such as price increases; and
  - if an event is more benign than anticipated, the Commission will have allowed the business to earn funds that it did not need, and could have been put to more productive uses, such as investment in hospitals or schools.
- determining the circumstances in which it may be permissible – even desirable – for a business to reduce its level of up-front contributions, or to redeploy a portion of the accumulated funds to other uses.

In our opinion, the administrative costs associated with overcoming these challenges may outweigh any benefit. For this reason, the arrangement should either not be applied to these types of events or, at the very least, be voluntary so as to leave businesses with the option of remaining uninsured. Moreover, if an EDB does receive an up-front allowance in the DPP for

such events, this should not preclude subsequent price increases if that event is more extensive than expected, or occurs before sufficient funds have accumulated.

Indeed, it is precisely because of this prospect of under-compensation (and the equivalent prospect of over-compensation) through the DPP that, on balance, it may be best to limit the application of any such scheme to events that are routinely dealt with by insurance markets. Put another way, it may be best to allow businesses to recover the costs of such events from their customers as and when they happen, rather than to provide a speculative allowance in the DPP. However, in order for that to work, the regulatory rules underpinning the DPP may require some revision to allow the price path to be re-opened when catastrophic events occur.

Finally, New Zealand's market risk premium, as assessed before the Canterbury earthquakes, did not include an 'implicit insurance premium' on a national basis. Such a finding would be demonstrably inconsistent with the way in which the Commission has calculated the regulatory WACC. Businesses are therefore not already being compensated through their existing prices for the potential costs associated with uninsured risks.

Appendix A. Orion's Commercial Decision

The approximate replacement cost of Orion's network is around $2 billion (based on its 2007 New Zealand IFRS revaluation and adjustments for subsequent inflation). The majority (some 65 per cent) of this value is accounted for by its overhead lines and underground cables. Specifically, of the $2 billion replacement cost valuation around 50 per cent is represented by its underground cable network and around 15 per cent is represented by its overhead lines.

Following Hurricane Katrina, these assets became very expensive to insure internationally. For example, on 9 November 2010 (prior to the February 2011 earthquake), Marsh (an external insurance broker) advised Orion that:[34]

> 'Current pricing for transmission and distribution (T & D) risks globally is in the region of between 7.5% and 15% of OG replacement cost. The high premiums are because of the perceived risk factor insurers have of these types of assets and their susceptibility to damage from catastrophic natural disaster. To our knowledge no transmission or distribution companies in Australia or New Zealand insure T & D.'

Orion therefore faced the prospect of paying in the order of $100 to $200 million per year in premiums to insure those assets.[35] By way of comparison, Orion's best (albeit still only preliminary) estimate of the overall cost to it of the earthquakes (both in terms of additional expenditure and in reduced revenue) is in the vicinity of $150 million. It would therefore only have made sense to Orion to insure its assets on the terms offered by Marsh if:

- it obtained terms at the lower end of the indicative range – say, at 7.5 per cent of replacement cost, which would imply annual premiums of around $100 million; and
- it expected that an event with an order of magnitude of the Canterbury earthquakes to occur once every 1.5 years, ie, $150 million ÷ $100 million.

Clearly, such a scenario would have been completely implausible. Not surprisingly, Orion did not consider that it was in the best interest of customers for it to pay those premiums (which would have implied higher prices), and it took the sound commercial decision to remain uninsured. In our opinion, this was a perfectly understandable decision at the time, given the then perceived likelihood of events such as the earthquakes.

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[34] Communication from Orion.

[35] We have assumed that 'OG replacement cost' is synonymous with the $1.3 billion estimate set out above.

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